

CLAIMS

What is claimed is:

5 1. A polarization conversion module used in a projection system to convert an incident light into polarized light, the polarization conversion module comprising:

 a convex lens used to receive and parallel the incident light passing therethrough;

10 a polarization beam splitter for receiving and polarizing the paralleled incident light transmitted from the convex lens, wherein the polarization beam splitter splits the paralleled incident light into two parts, one part penetrating through the polarization beam splitter and another part being reflected by the polarization beam splitter;

15 a phase transformation device for receiving the polarized light penetrating through the polarization beam splitter and transforming the phase of the polarized light passing therethrough, thereby generating phase-shifted polarized light; and

 a mirror for reflecting the reflected polarized light from the polarization
20 beam splitter.

 2. The polarization conversion module of claim 1, further comprising a focusing lens for receiving the phase-shifted polarized light from the phase transformation device and the reflected polarized light from the mirror, and

projecting the received light onto a predetermined zone.

3. The polarization conversion module of claim 1, wherein the phase transformation device is a $1/2$ wavelength plate.

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4. The polarization conversion module of claim 1, wherein the polarization beam splitter is a polarization beam splitting prism.

5. The polarization conversion module of claim 1, wherein the
10 polarization beam splitter is a polarization beam splitting plate.

6. A method for converting polarity of light, suited for projection systems to convert an incident light into mono-polarity output light, the method comprising the steps of:

15 paralleling the incident light;

polarizing the paralleled incident light, wherein the polarized incident light is split into two parts, one part being phase-shifted as a phase-shifted polarized output light and another part being reflected; and

secondary-reflecting the reflected polarized incident light to generate a
20 non-phase-shifted polarized output light.

7. The method of claim 6, further comprising the step of collecting the phase-shifted polarized output light and the non-phase-shifted polarized output

light and projecting them onto a predetermined zone.

8. The method of claim 7, wherein the method of collecting the phase-shifted polarized output light and the non-phase-shifted polarized output
5 light is to use a focusing lens.

9. The method of claim 6, wherein a convex lens is used in the step of paralleling the incident light.

10 10. The method of claim 6, wherein the step of polarizing the paralleled incident light involves the use of a polarization beam splitter.

11. The method of claim 6, wherein the polarized incident light is phase shifted by using a phase transformation device.

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12. The method of claim 6, wherein the step of secondary-reflecting the reflected polarized incident light to generate a non-phase-shifted polarized output light involves the use of a mirror.

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